GCSE Checklist – Forces 3: Motion and Momentum (Combined Science)

	Got it?	Page(s)
Describe the difference between distance and displacement; express displacement in terms of magnitude and direction		178
Recall typical speeds for a person walking, running, cycling and for different types of transportation systems; recall a typical value for the speed of sound in air		179
Make measurements of distance and time; recall and use $s = vt$; define all terms and standard units.		179
Describe the differences between speed and velocity		178
HT ONLY Explain, with examples, that motion in a circle involves constant speed but changing velocity		179
Describe how to find a speed from a distance-time graph; draw distance-time graphs from measurements; interpret lines and slopes		183
HT ONLY find the speed of an accelerating object from a distance-time graph using a tangent and gradient		184
Recall and use $a = \frac{\Delta v}{t}$; define all terms and standard units.		181
Describe how to find a acceleration from a velocity-time graph; draw velocity-time graphs from measurements; interpret lines and slopes		186
HT ONLY interpret enclosed areas in velocity-time graphs; measure the area under a velocity-time graphs by counting squares		187
Use $v^2 - u^2 = 2as$, define all terms and standard units		182
Know that objects near Earth's surface falling freely accelerate at about $9.8 \, m/s^2$; describe in reality why the resultant force on a falling object eventually reaches zero as it reaches its terminal velocity		191

State the relationship between stopping distance, braking distance and thinking distance		208
Explain the factors which affect the distance required for road vehicles to come to a stop in emergencies; estimate how the distance required to stop varies over a range of typical speeds		209
State a typical human reaction time; explain, interpret and evaluate methods used to measure different reaction times		219
Describe the energy transfers during emergency stops; relate the work done by the brakes to the kinetic energy of the vehicle		215
HT ONLY recall and use $p = mv$; define all terms and standard units		216
HT ONLY describe the conservation of momentum; use the concept of momentum as a model and explain examples of momentum in an event such as a collision		216